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NOTES ON GEOGRAPHIC DISTRIBUTION

# First record of *Stichopathes occidentalis* (Gray, 1860) and range extensions of *Antipathes atlantica* Gray, 1857 (Cnidaria: Anthozoa: Antipatharia) in the southwestern Atlantic Ocean

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**ABSTRACT:** Twenty one species of black corals have been recorded in the Brazilian Exclusive Economic Zone (EEZ) to date, distributed mainly at depths greater than 20 m. The diversity of these environments along the northern and northeastern coasts of Brazil has been poorly investigated, in particular few information are available for the cnidarian fauna. This note represents the first record of the genus *Stichopathes* for the southwestern Atlantic Ocean, and also fills in the gaps in the distribution of *Antipathes atlantica* between the northern and southern coasts of Brazil.

Brazil has the highest known diversity of cnidarian anthozoans of the southwestern Atlantic Ocean. Although over 80 octocoral species and more than 80 scleractinians are known for the Brazilian Exclusive Economic Zone (EEZ), studies about the black coral fauna are still scarce in the region. The main studies available are those by Echeverría and Castro (1995), Loiola and Castro (2001), Echeverría (2002), Pérez *et al*. (2005), Loiola and Castro (2005), Castro *et al.* (2006), Loiola (2007) and Opresko and Loiola (2008). All together, these studies report for twenty one species in the Brazilian waters. According to Castro *et al*. (2006), the greatest black coral richness off Brazil occurs in the area near Cape of São Tomé (about 22°S), between 100 and 500 m depth, with six species co-occurring there. Ecological data about this group are also rare around the globe (Tazioli *et al*. 2007).

Aim of this work is to report the new records of two antipatharians species for the N-NE Brazilian waters. Samples were manually removed from the colonies or trawled, taken to the laboratory for identification and then deposited in the Cnidarian Collection of the Oceanographic Museum of the Federal University of Pernambuco (MOUFPE). Identification was carried out following Opresko and Sánchez (2005) on the base of spine morphology. Some taxonomic features (such as colony height, polyps arrangement and color) were only observed in the field.

The genus *Stichopathes* Brook, 1889 is cosmopolitan and comprises about 35 species, found from shallow-water reef environments to extremely deep areas. Two species of this genus have been recorded for the northwestern Atlantic Ocean in mesophotic reef ecosystems, namely *Stichopathes occidentalis* (Gray, 1860) and *Stichopathes lutkeni* Brook, 1889 (Opresko and Sanchez 2005). Here is reported the first record of *S. occidentalis* for the South Atlantic Ocean (Figure 1). One specimen was collected in March 2011 on the "Vapor 48" shipwreck (08°08'00" S, 34°36'00" W), located at 48 m depth, off the coast of Pernambuco (Brazil) (Figure 2D). The fragment (MOUFPE-CNI 868) was taken from an unbranched, sinuous colony, about 1.3 m in height, with a slightly coiled upper portion (Figure 2A) and polyps arranged in a single series. The spines are conical, laterally compressed, distributed in 14 rows (Figure 2B,C) covered with small tubercles. Polypar and abpolypar spines up to 0.5 mm and 0.3 mm in height, respectively.

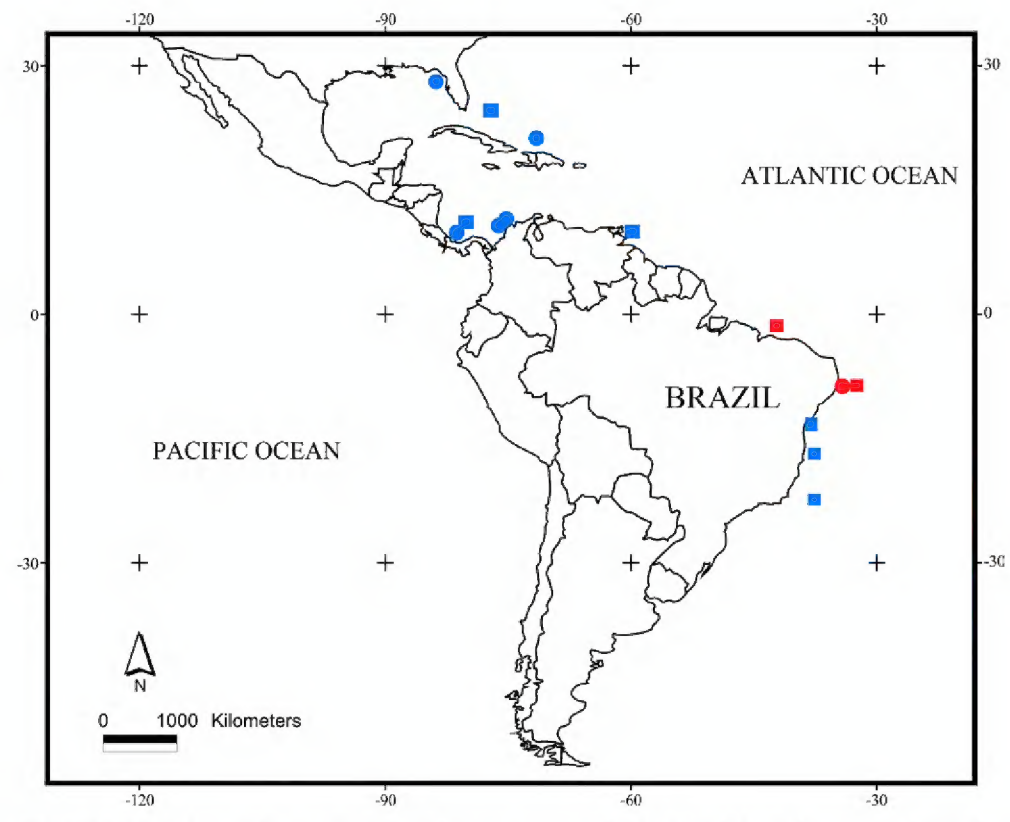


**FIGURE 1.** Map of literature and new records of *Stichopathes occidentalis* and *Antipathes atlantica*, based in Brooks (1889), Warner (1981), Loiola and Castro (2001), Opresko (2009), Opresko and Sánchez (2005), Castro et al. (2006) and Loiola (2007). Circles: *S. occidentalis* records; squares: *A. atlantica* records. Blue: previous records; red: new records.

One specimen of *Antipathes atlantica* Gray, 1857 was collected in the same location of *S. occidentalis* (Figure 1), while another specimen was found in May 2008 during the *PIATAM Oceano* campaign, off the state of Maranhão (01°49'00" S, 42°55'00" W), at 62 m depth. The previous disjunction between Caribbean and eastern Brazilian populations of *A. atlantica* was then complemented by these findings (see Loiola and Castro 2001 and Castro *et al.* 2006). The colonies of this species [from 8 cm (MOUFPE-CNI 866) to 80 cm (MOUFPE-CNI 867) in height] are bushy, densely branched and pinnulated, mostly in one plane, often slightly curved (Figure 3C). Pinnules, rarely exceeding 1 cm in length, are biserial, up to the 7th order, and rarely anastomosing (Figure 3A). The spines are short (0.08 - 0.12 mm in height), conical, laterally compressed and smooth. They are arranged in 7 or 8 longitudinal rows in proximal ramifications and 5 or 6 in the distal ones, and show a density of up to 35 spines $cm^{-1}$ per row (Figure 3B).

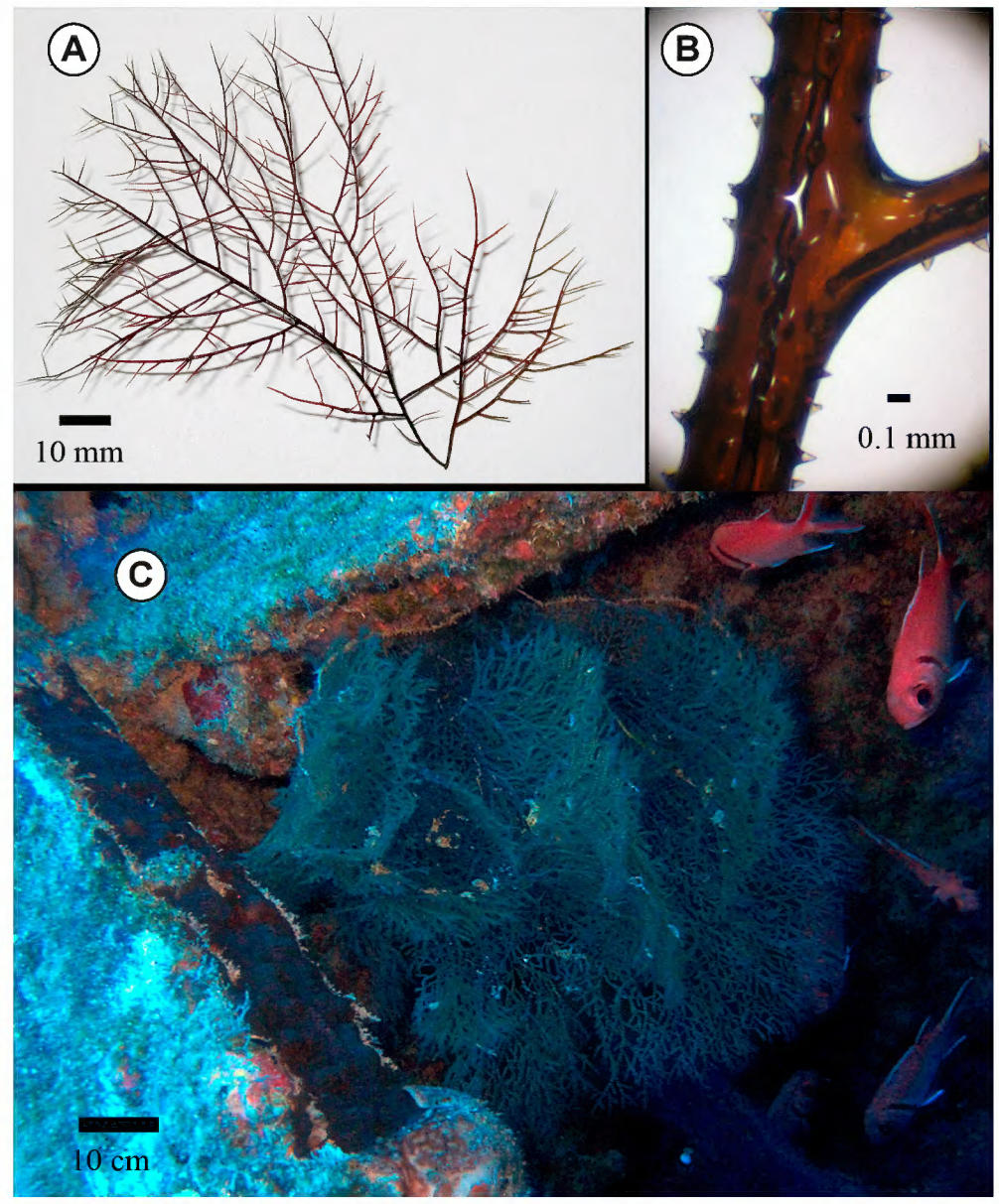


**FIGURE 3.** Photographs of *Antipathes atlantica*. A: fragment MOUFPE-CNI 867; B: detail of a ramification; C: live colony.

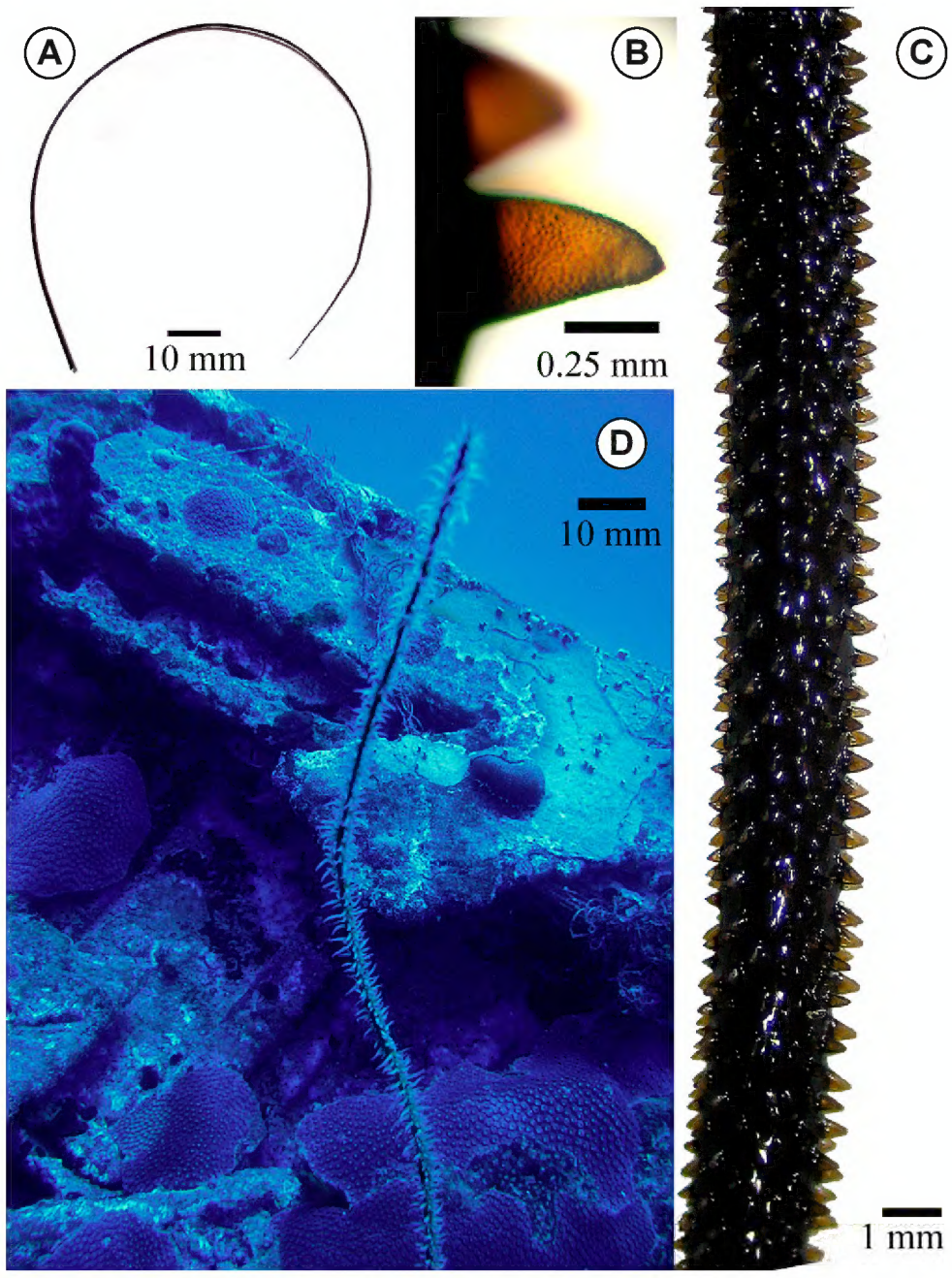


**FIGURE 2.** Photographs of *Stichopathes occidentalis*. A: fragment MOUFPE-CNI 868; B: detail of a spine; C: dry colony; D: live colony.

Some populations of black corals, belonging to the genera *Stichopathes*, *Tanacetipathes* and *Antipathes*, were observed off the coast of the city of Recife (state of Pernambuco) thanks to deep dives (up to 105 m deep) carried out during 2011. Similarly, accidental collections of these species have been commonly reported in neighboring areas, such as off the coast of Rio Grande do Norte state. Due to the closeness to the Caribbean Sea, and to the faunistic resemblance of other cnidarian groups among the two areas (*e.g.* octocorals and azooxanthellate scleractinians), it is possible that the richness of the N-NE Brazilian black corals communities is yet underestimated.

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